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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,088	04/12/2004	Ning Wang	318-000220US	3167

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EXAMINER

CANTELMO, GREGG

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 07/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,088

Applicant(s)

WANG ET AL.

Examiner

Gregg Cantelmo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-119 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-119 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - a. Group I, claim(s) 1-23, drawn to fibers bearing nanoparticles, class 423, subclass 445R;
 - b. Group II, claim(s) 24-49 and 65-86, drawn to a catalyst and method of making the catalyst, class 502, subclass 185.
 - c. Group III, claim(s) 50-59, drawn to a proton exchange membrane and electrode combination, class 521, subclass 27.
 - d. Group IV, claim(s) 60-62, drawn to a fuel cell stack, class 429, subclass 40.
 - e. Group V, claim(s) 63-64, drawn to a battery replacement, class 104, subclass 34.
 - f. Group VI, claim(s) 87-112, drawn to a method of preparing a fuel cell element, class 427, subclass 115.
 - g. Group VII, claim(s) 113-119, drawn to a method of making a carbon nanotube, class 427, subclass 249.1.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention of Group I has separate utility such as a non-catalytic film fiber material. See MPEP § 806.05(d). Inventions I and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as conductive fibers free of any catalytic material film. See MPEP § 806.05(d). Inventions I and IV are related as subcombinations disclosed as usable together in a single

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combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as conductive fibers free of any catalytic material film. See MPEP § 806.05(d). Inventions I and V are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as conductive fibers free of any catalytic material film. See MPEP § 806.05(d).

Furthermore the composition of Group I and a battery replacement of Group V represent significantly divergent subject matter from one another. Inventions I and VI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention of Group I has separate utility such as composition for. See MPEP § 806.05(d). Furthermore the method of Group VII does not require the composition of Group I and alternatively can use a porous electrode material using a nanoparticle catalyst thereon. Inventions I and VII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the carbon nanotubes of Group I can be made by other processes including non-catalytic nanotube formation. Furthermore the scope of the fibers of Group I and that of the method of Group VII are not coextensive since the fibers can be fibers other than carbon

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nanotubes (such as nanofibers, nanohorns, nanopowders, nanospheres and quantum dots). Thus the composition of Group I, in using these alternative fibers would not require the carbon nanotube process of Group VII.

3. Inventions II and III-V are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a catalytic material in other fuel cell systems such as alkaline fuel cells, solid oxide fuel cells, phosphoric acid fuel cells, etc. and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention. Furthermore the catalyst of Group II and a battery replacement of Group V represent significantly divergent subject matter from one another. Inventions II and VI are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the

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intermediate product is deemed to be useful as a battery element, capacitor element or electrolysis element, etc. and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention. Inventions II and VII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the carbon nanotubes of Group II can be made by other processes including non-catalytic nanotube formation. Furthermore the scope of the fibers of Group II and that of the method of Group VII are not coextensive since the fibers can be fibers other than carbon nanotubes (such as nanofibers, nanohorns, nanopowders, nanospheres and quantum dots). Thus the composition of Group II, in using these alternative fibers would not require the carbon nanotube process of Group VII.

4. Inventions III and IV-VI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention III has separate

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utility such as an electrode membrane combination for electrolyzers or gas sensors.

See MPEP § 806.05(d). Furthermore the electrode membrane of Group III and a battery replacement of Group V represent significantly divergent subject matter from one another. Inventions III and VII are related as process of making and product made.

The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the electrode membrane of Group III can be made by other processes including non-catalytic nanotube formation. Furthermore the scope of the fibers of Group III and that of the method of Group VII are not coextensive since the fibers can be fibers other than carbon nanotubes (such as nanofibers, nanohorns, nanopowders, nanospheres and quantum dots). Thus the composition of Group III, in using these alternative fibers would not require the carbon nanotube process of Group VII.

5. Inventions IV and V are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention the fuel cell stack of Group IV has separate utility such as a fuel cell stack not disposed in a container having those terminals, furthermore the battery replacement of Group V can be used for other electrochemical devices other than fuel cells such as lithium batteries, lead acid batteries, nickel secondary batteries, etc.. See MPEP § 806.05(d). Inventions IV and VI are related as subcombinations disclosed as usable together in a single combination.

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The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention of Group VI has separate utility such as a method of forming electrode elements for a capacitor or electrolyzer. See MPEP § 806.05(d). Inventions IV and VII are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are a fuel cell stack and method of making carbon nanotubes.

6. Inventions V and VI are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are a battery replacement (Group V) and method of preparing a fuel cell element (Group VI). Inventions V and VII are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions a battery replacement (Group V) and method of making carbon nanotubes (Group VII).

7. Inventions VI and VII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the carbon nanotubes of Group VI can be made

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by other processes including non-catalytic nanotube formation. Furthermore the scope of the fibers of Group VI and that of the method of Group VII are not coextensive since the fibers can be fibers other than carbon nanotubes (such as nanofibers, nanohorns, nanopowders, nanospheres and quantum dots). Thus the composition of Group VI, in using these alternative fibers would not require the carbon nanotube process of Group VII.

8. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper. Because these inventions are distinct for the reasons given above and the search required for each group is not required for coextensively required for one another, restriction for examination purposes as indicated is proper. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

ADDITIONAL SPECIES ELECTION REQUIREMENT

9. This application contains claims/discloses directed to the following patentably distinct species of the claimed invention:

If Applicant elects Group I, Applicant is further required to elect an ultimate species for the nanoparticles, fibers, catalyst and film of Group I.

If Applicant elects Group II, Applicant is required to elect an ultimate species for the nanoparticles, catalyst and film (platinum or specific alloy of platinum) of Group II.

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If Applicant elects Group III, Applicant is required to elect an ultimate species for the catalyst, nanoparticles and platinum film (platinum or specific alloy of platinum) of Group III.

If Applicant elects Group IV, Applicant is required to elect an ultimate species for the catalyst, nanoparticles and platinum film (platinum or specific alloy of platinum) of Group IV.

If Applicant elects Group V, Applicant is required to elect an ultimate species for the catalyst, nanoparticles and platinum film (platinum or specific alloy of platinum) of Group V.

If Applicant elects Group VI, Applicant is required to elect an ultimate species for the catalyst, nanoparticles, continuous film and type of deposition of Group VI.

If Applicant elects Group VII, Applicant is required to elect an ultimate species for the catalysts and type of deposition of Group VII.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

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Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

10. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (571) 272-1283. The examiner can normally be reached on Monday to Thursday from 9 a.m. to 6 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (571) 272-1292. The fax phone number for

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the organization where this application or proceeding is assigned is 703-872-9306.

FAXES received after 4 p.m. will not be processed until the following business day.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

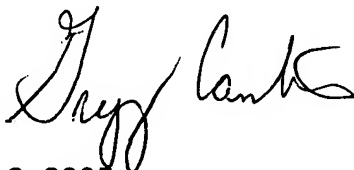
more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

Gregg Cantelmo
Primary Examiner
Art Unit 1745

gc



July 2, 2005